DU28200M

RF Power MOSFET Transistor
200 W, 2 - 175 MHz, 28 V

Rev. V1

Features

- N-Channel enhancement mode device
- DMOS structure
- Lower capacitances for broadband operation
- High saturated output power
- Lower noise figure than bipolar devices
- RoHS Compliant

ABSOLUTE MAXIMUM RATINGS AT 25° C

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	65	V
Gate-Source Voltage	V_{GS}	20	V
Drain-Source Current	I_{DS}	20	A
Power Dissipation	P_D	389	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-65 to +150	°C
Thermal Resistance	θ_{JC}	0.45	°C/W

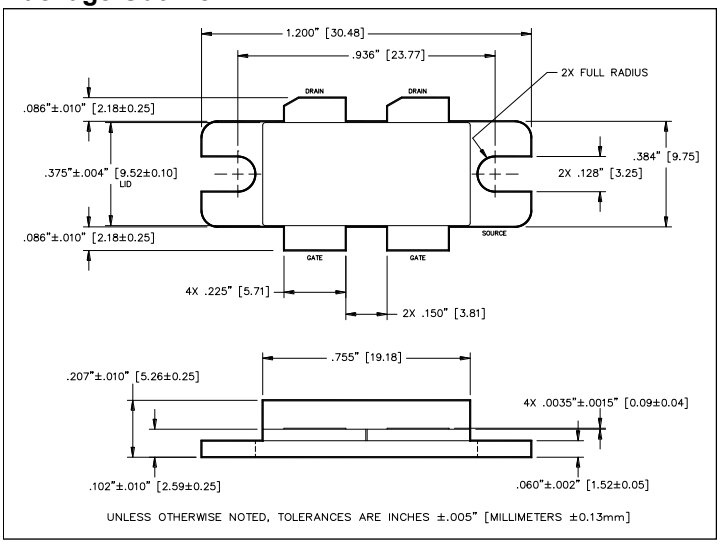
TYPICAL DEVICE IMPEDANCE

F (MHz)	Z_{IN} (Ω)	Z_{LOAD} (Ω)
30	2.7 - j4.8	7.2 - j1.9
100	1.6 - j3.0	5.25 - j1.4
150	1.5 - j2.0	5.0 - j0.7
175	1.6 - j1.0	5.2 - j0.6
200	1.8 - j0.5	5.5 - j0.5
V_{DD} = 28V, I_{DQ} = 1000mA, P_{OUT} = 200 W		

Z_{IN} is the series equivalent input impedance of the device from gate to source.

Z_{LOAD} is the optimum series equivalent load impedance as measured from drain to ground.

Package Outline



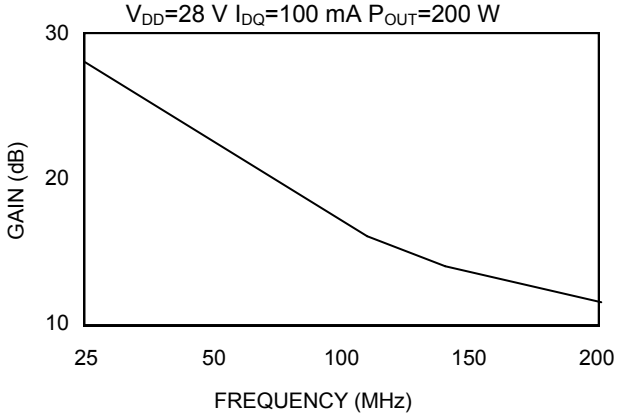
LETTER DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	30.35	30.61	1.195	1.205
B	23.65	23.90	.931	.941
C	13.72	14.22	.540	.560
D	9.63	9.88	.379	3.89
E	9.40	9.65	.370	.389
F	9.40	9.65	.370	.389
G	5.59	5.84	.220	.230
H	18.80	19.30	.740	.760
J	9.40	9.65	.370	.380
K	3.12	3.38	.123	.133
L	1.47	1.57	.058	.062
M	2.39	2.74	.094	.108
N	5.03	5.69	.198	.224
P	.05	.13	.002	.005

ELECTRICAL CHARACTERISTICS AT 25°C

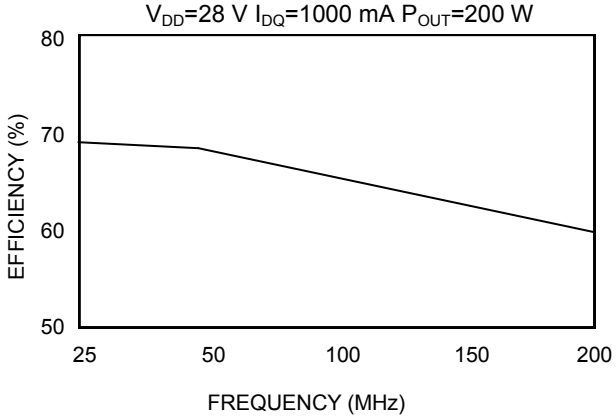
Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	65	-	V	V_{GS} = 0.0 V , I_{DS} = 25.0 mA
Drain-Source Leakage Current	I_{DSS}	-	5.0	mA	V_{GS} = 28.0 V , V_{GS} = 0.0 V
Gate-Source Leakage Current	I_{GSS}	-	5.0	µA	V_{GS} = 20.0 V , V_{DS} = 0.0 V
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	6.0	V	V_{DS} = 10.0 V , I_{DS} = 500.0 mA
Forward Transconductance	G_M	2.5	-	S	V_{DS} = 10.0 V , I_{DS} = 5.0A , Δ V_{GS} = 1.0V, 80 µs Pulse
Input Capacitance	C_{ISS}	-	225	pF	V_{DS} = 28.0 V , F = 1.0 MHz
Output Capacitance	C_{OSS}	-	200	pF	V_{DS} = 28.0 V , F = 1.0 MHz
Reverse Capacitance	C_{RSS}	-	40	pF	V_{DS} = 28.0 V , F = 1.0 MHz
Power Gain	G_P	13	-	dB	V_{DD} = 28.0 V, I_{DQ} = 1000 mA, P_{OUT} = 200.0 W F =175 MHz
Drain Efficiency	η_D	55	-	%	V_{DD} = 28.0 V, I_{DQ} = 1000 mA, P_{OUT} = 200.0 W F =175 MHz
Load Mismatch Tolerance	VSWR-T	-	10:1	-	V_{DD} = 28.0 V, I_{DQ} = 1000 mA, P_{OUT} = 200.0 W F =175 MHz

Typical Broadband Performance Curves

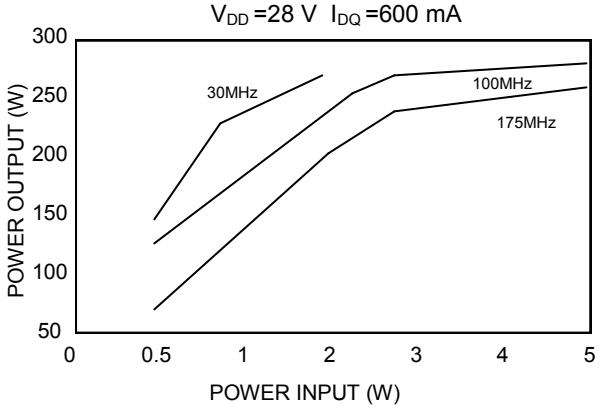
GAIN vs FREQUENCY
V_{DD}=28 V I_{DQ}=100 mA P_{OUT}=200 W



EFFICIENCY vs FREQUENCY
V_{DD}=28 V I_{DQ}=1000 mA P_{OUT}=200 W



POWER OUTPUT vs POWER INPUT
V_{DD} =28 V I_{DQ} =600 mA



TEST FIXTURE SCHEMATIC